

Appendix 8: Operations of the Radiation Health and Safety Advisory Council and Committees

Operations of the Radiation Health and Safety Advisory Council 2013–14

The Radiation Health and Safety Council (Council) met on three occasions during the year (August 2013, November 2013 and April 2014) and considered a wide range of radiation protection and nuclear safety topics. Summaries of the meetings as well as other relevant Council information can be found at: www.arpansa.gov.au/AboutUs/Committees/rhsacmt.cfm.

During this financial year, Council was chaired by Ms Sylvia Kidziak AM (NSW) until December 2013 and Professor Ray Kemp (Victoria) from January 2014 to present.

Council for the 2012–14 triennium is composed of the following:

- CEO of ARPANSA: Dr Carl-Magnus Larsson (NSW)
- Person to represent the interests of the general public: Em Prof Ian Lowe AO (QLD)
- Radiation Control Officers: Mr Keith Baldry (SA), Mr Simon Critchley (QLD)
- Nominee of the Chief Minister of the Northern Territory: Dr Stephen Skov (NT)
- Seven other Members:
 - » Dr Roger Allison (QLD)
 - » Ms Jill Fitch (SA)
 - » Dr Brad Cassels (VIC)
 - » Dr Denise Wheeler (QLD)
 - » Ms Melissa Holzberger (QLD)
 - » Mr Frank Harris (QLD)
 - » Professor Ray Kemp (VIC)/ Ms Sylvia Kidziak AM (NSW)

The current membership term will end in December 2014 and expressions of interest for membership from 2015 will be sought in mid-2014.

Adoption of Codes of Practice and Standards

During the year, Council advised the CEO to adopt *Fundamentals for Protection Against Ionising Radiation* developed by the Radiation Health Committee into the Radiation Protection Series as RPS F-1.

Reports to the CEO

The Council forwarded advice on the Management of Risks in the Transport of Radioactive Material in Australia to the CEO of ARPANSA on 13 December 2013. This advice can be found at:

www.arpansa.gov.au/Publications/RHSAC/rhsac_stat.cfm

Other issues considered

Topics discussed and reviewed by the Council during this financial year include:

- Cosmic radiation exposure of aircrew, monitoring programs, exposure levels and company policies within the Australian airline industry.
- Current radiofrequency research and public exposures and the preliminary outcomes of the ARPANSA radiofrequency literature review.
- Roles and Expectations of ARPANSA's Advisory Bodies, the Council, the Radiation Health Committee (RHC) and the Nuclear Safety Committee (NSC), and how interactions between these groups might be enhanced to ensure optimal benefit from the skills and expertise of members.
- Strategies for increasing the visibility of the role of the Member representing the interests of the general public.
- ARPANSA's Communication Strategy and Plan, and Council discussed outcomes from the Australasian Radiation Protection Society (ARPS) 2013 Conference which had included considerable discussion about how this profession communicates radiation risks.
- The Australian Government's Deregulation Agenda and the implications for the revision of the ARPANS Act, ARPANSA's activities, including the status of work with medical imaging activities, progress of the Radon Progeny Technical Working Group and the strategy for the revision of the ARPANSA Radiation Protection Series framework that implement the new hierarchy of documents which were endorsed by Council in December 2011.

- Changes to ARPANSA's structure and other recommendations proposed by the Strategic Management Committee to ensure a sustainable future for ARPANSA.
- The findings of the 2013 UNSCEAR Report - *Annex A Levels and effects of radiation exposure due to the nuclear accident after the 2011 Great East-Japan Earthquake and Tsunami* which had been launched by Dr Larsson as Chair of UNSCEAR on 2 April 2014. An overview of the Report was presented including a detailed discussion of dose estimates to members of the public, effects upon non-human biota and dose estimates and health effects for workers and the public in Japan from the radiation exposures received as a result of the nuclear accident. The CEO reflected on the lessons learned by ARPANSA as a result of the Fukushima nuclear accident and noted that communication is one area of significant importance where there could be clear support from Council. The CEO also noted that ARPANSA had established closer working arrangements with a number of organisations, both nationally and internationally as a result of the accident. Council formally expressed their gratitude to ARPANSA for taking such a leading role in this significant and important body of work. Members congratulated all of the ARPANSA staff involved with this project and on the publication of the report.
- Progress with the revision of the ARPANS Act and the Memorandum of Understanding for Medical Imaging with the Department of Health.
- Progress on mapping the Radiation Protection Series documents (and Radiation Health Committee Statements and Radiation Health and Safety documents) against relevant international publications: including IAEA safety series, ICRP publications and ICNIRP publications; noting the Radiation Health Committee's proposal to consider adoption of IAEA publications as Radiation Protection Series documents subject to legislative approvals and requirements.
- Review and analysis of the linear no-threshold (LNT) hypothesis and model and consideration of the merits of the continued use of the LNT model as the basis for Australia's radiation protection framework. Members agreed that whilst there is uncertainty with the LNT model in the low dose range, it still offers the best approach from a regulatory perspective.
- The Bonn Call-for-Action - Joint Position Statement by the IAEA and WHO which was developed as an outcome of the Bonn 2012 International Conference on Radiation Protection in Medicine: Setting the Scene for the Next Decade. Council noted the Bonn Call-for-Action against the background of work already done by ARPANSA encouraging ARPANSA to undertake further dialogue with relevant Australian stakeholders and that the Radiation Health Committee be requested to review the Bonn Call-for-Action in relation to their planned work activities.
- Briefings on the proposed changes to ARPANSA's Strategic Directions for the Financial Years 2014–17.

Members reviewed Council's Mission, Vision, Values, Strategic Goals and Strategic Directions and agreed to the following:

- Council's Mission, Vision and Values should closely align with ARPANSA's Mission, Vision and Values.
- Proposed editorial changes to Council's Strategic Goals be accepted.
- Strategic Directions should align with the ARPANSA Strategic Directions 2014–2017 document and be reviewed on an annual basis.
- The three priority areas where Council should consider and complete work are:
 - » medical radiation - focusing on: paediatric doses, computed tomography, breast scanning and rationalisation of diagnostic imaging
 - » ongoing and emerging issues in radiation protection and science - focusing on existing exposure situations (aircrew and legacy sites) and issues associated with non-ionising radiation exposure
 - » effective communication and engagement on radiation management and nuclear safety.

Operations of the Radiation Health Committee 2013–14

This financial year, the Radiation Health Committee (RHC) met on three occasions at ARPANSA's office in Miranda, New South Wales: 13 November 2013, 5 March 2014 and 25 June 2014. Minutes of the meetings as well as other relevant committee information can be found at:

www.arpansa.gov.au/AboutUs/Committees/rhc.cfm

The Chair and Members for the 2012–14 triennium are set out below:

- *Chair:* Mr Keith Baldry (SA), Director, Regulation and Compliance, Environment Protection Authority
- *CEO of ARPANSA:* Dr Carl-Magnus Larsson (NSW)
- *Radiation Control Officers:* (each state and territory)
 - » Mr Ross Bevan (ACT), Manager Radiation Safety, Health Protection Service, ACT Health Directorate
 - » Associate Professor Brad Cassels (VIC), Expert Advisor Radiation, Department of Health
 - » Mr Simon Critchley (QLD), Director, Radiation Health, Department of Health
 - » Mr Len Potapof (NSW), Manager Radiation Regulation Unit, Environment Protection Authority
 - » Mr Russell Robinson (NT), Manager Radiation Protection, Department of Health
 - » Dr Barbara Shields (TAS), Senior Health Physicist, Department of Health and Human Services
 - » Ms Hazel Upton (WA), Managing Health Physicist, Radiation Health Unit, Department of Health
- *Nuclear Safety Committee representative:* Mr Robert Lyon (QLD), nuclear safety expert, formerly with AECL (Canada) and IAEA.
- *Person to represent the interests of the general public:* Dr Peter Karamoskos (VIC), radiologist and nuclear medicine specialist
- *Other members:*
 - » Dr Roslyn Drummond (VIC), Deputy Director of Radiation Oncology, Peter MacCallum Cancer Centre
 - » Dr Andrew Kerans (ACT), Adjunct Associate Professor of Engineering, James Cook University (QLD)

The current membership term of the RHC will end in December 2014 and expressions of interest for membership from 2015 will be sought in mid-2014.

Work undertaken by the Radiation Health Committee during this financial year included:

- Endorsement of the CEO's proposal about interactions between ARPANSA and the advisory bodies focusing on revitalising the committees and the Council and promoting the RHC's role in the promotion of national uniformity including encouraging broader public interaction with their work.

- Endorsement of a new project management strategy for working groups, including a 21 Step process for the production of publications.
- Consideration of progress on development of a number of publications in the Radiation Protection Series (RPS) as well as amendments to the *National Directory for Radiation Protection* (the NDRP).
- Approval of the final version of ARPANSA's top tier document, *Fundamentals for Protection Against Ionising Radiation*, which was subsequently endorsed by the Council, and published as RPS F-1 in February 2014.
- Completion of preliminary deliberations on the draft *Code of Practice for Radiation Protection in Planned Exposure Situations* (together with the Fundamentals) which will supersede RPS 1 *Recommendations for Limiting Exposure to Ionizing Radiation (1995) and National Standard for Limiting Occupational Exposure to Ionizing Radiation* (republished 2002).
- Continuing work on regulatory impact assessment process for the draft Code (above) with a view to proceeding to public comment sometime in the next financial year, pending approval by the Office of Best Practice Regulation (OBPR).
- Significant progress on the development of the *Safety Guide for Radiation Protection of the Environment* and noting that drafting had reached the public consultation stage, having satisfied the requirements of the OBPR, and this Safety Guide is expected to be published in late 2014.
- Recommendations that the Committee Working Group developing the Safety Guide on Clearance and Closure Criteria for Sites Contaminated by Past and Present Activities incorporate or adopt relevant international publications and consider how radiological contamination criteria can be built into the National Environmental Protection (Assessment of Site Contamination) Measure.
- Completion of Revision of RPS 2 *Code of Practice for Safe Transport of Radioactive Material* to align with the 2012 Edition of the IAEA *Regulations for Safe Transport of Radioactive Material* (SSR-6) with the revised Code approved with minor final editorial changes by the Committee in June 2014.

- Noted that additional consultation is required on the ELF Guidelines Reducing exposure to electric and magnetic fields (0 Hz – 3 kHz) to satisfy the OBPR requirements.
- ARPANSA's Radiofrequency (RF) Research Report was considered as a basis for revising and simplifying RPS 3 *Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz (2002)*, noting that RPS 3 still continues to provide an adequate level of protection to the public.
- Noted a proposal from the Victorian Health Department to the Standing Committee on Health seeking a national ban on commercial solarium and tanning units. Members confirmed that their respective jurisdictions were already moving toward such a ban, but it was not expected to extend to domestic solarium.
- Noted ARPANSA's mapping of the RPS documents against relevant international publications and the resulting gap analysis which is being used to inform a revised work program based on international best practice. In principle support was given for the process of adopting relevant international publications as RPS documents, with appropriate guidance, to assist users in Australia. Also considered was a proposal to provide convenient links to international documents from the ARPANSA website.
- Consideration and discussion of the Australian Government's Deregulation Agenda and potential ramifications for the National Directory and the amendments process.
- Consideration of issues of mutual recognition by jurisdictions and the effectiveness of national uniformity and the National Directory, with members agreeing that that national uniformity has not been fully achieved in its implementation.
- Consideration of a draft protocol *Regulatory Expectations for Users of Radiation Sources Seeking to Obtain Authorisations in More than One State or Territory*, which should provide a mechanism for reducing unnecessary regulatory burden and additional costs for business within the existing agreed national policy of mutual recognition.

The following Radiation Health Committee Project Proposals for new or revised RPS documents were considered:

- Fundamentals for Protection Against Non-Ionising Radiation
- Code for Government, Legal and Regulatory Framework for Safety
- Code for Management Systems
- Code for Radiation Protection in Existing Exposures
- Code for Emergency Exposures to Ionising Radiation
- Safety Guide for Emergency Preparedness and Response
- Guidelines on Limits of Exposure to Electric and Magnetic Fields – 0 to 3 kHz
- Revision of RPS 3 *Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz (2002)* and production of associated Safety Guide
- Revision of RPS 14 *Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (2008)*.

Operations of the Nuclear Safety Committee 2013–14

The role of the Nuclear Safety Committee (NSC) is to advise the CEO and the Radiation Health and Safety Advisory Council on matters relating to nuclear safety and the safety of controlled facilities. This includes reviewing and assessing the effectiveness of standards, codes, practices and procedures. The Nuclear Safety Committee met on three occasions during this financial year: 1 November 2013, 28 February 2014 and 20 June 2014. A summary of each meeting is available on the ARPANSA website at www.arpansa.gov.au/AboutUs/Committees/nscmt.cfm

Membership of the Nuclear Safety Committee for the 2012–14 triennium is as follows:

- *Chair:* Dr Tamie Weaver (VIC), Technical Director - Hydrogeology, environmental resources management consultancy
- *CEO of ARPANSA:* Dr Carl-Magnus Larsson (NSW)
- *Radiation Health Committee representative:* Dr Barbara Shields (TAS) Senior Health Physicist, Department of Health and Human Services
- *Local Government representative:* Mr Ian Drinnan (NSW) Principal Environmental Scientist, Sutherland Shire Council
- *Person to represent the interests of the general public:* Mr Christopher Tola (NSW) Officer, local government authority

- *Other members:*
 - » Ms Kerrie Christian (NSW), metallurgist with background in governance, safety and reliability
 - » Dr Rob Lee (ACT), human factors, systems safety and risk management expert with experience of aviation and other high technology industries
 - » Mr Robert Lyon (QLD), nuclear safety expert, formerly with AECL and IAEA
 - » Mr Don Macnab (NSW), former Director, Regulatory and Policy Branch, ARPANSA
 - » Em Prof Ian Polmear (VIC), Monash University, Materials Science, metallurgist with expertise in nuclear and other high technology industries
 - » Mr Peter Wilkinson (ACT), consultant in safety management and safety culture in hazardous industries

Key topics reviewed by the Nuclear Safety Committee during this financial year included:

- ARPANSA issuing a siting and construction licence to ANSTO for the proposed ANSTO Nuclear Medicine Molybdenum-99 Facility which will be used to produce molybdenum-99 for manufacturing radiopharmaceuticals.
- ANSTO's applications for siting and construction of an Interim Waste Store which is a purpose-built store for intermediate level solid radioactive waste returning from France towards the end of 2015. The Committee discussed various safety aspects of ANSTO's proposed application for licences to prepare a site for, and to construct, an Interim Waste Store which is a purpose-built store for intermediate level solid radioactive waste returning from France towards the end of 2015. Aspects considered included: waste storage methodology; plans and arrangement for ongoing maintenance of the store; duration of storage; and maintaining ongoing oversight of the store. The CEO requested the Committee provide more detailed advice out-of-session which was subsequently provided by letter dated 22 November 2013.
- Various aspects about the licensing of ANSTO's SyMo facility which will be used to condition intermediate level liquid waste, arising from ANSTO's production of molybdenum-99, into an immobilised form using Synroc technology. Issues considered included: safety of the proposed Synroc technology; adequacy of the risk assessment conducted; safety regulations during construction; and proposed plans for future decommissioning.
- Safety aspects of ANSTO's licence to operate the Australian Synchrotron and in particular the licensing requirement that ANSTO provide ARPANSA with the updated plans and arrangements, safety analysis report, and operating limits and conditions by September 2013 focusing upon safety aspects of documents submitted, specifically the safety of the future use of the imaging and medical beam-line.
- Safety of controlled facilities at ANSTO which included a brief outline of the inspections undertaken, and applications received, assessed and approved since the June 2013 meeting.
- Items discussed at the Radiation Health and Safety Advisory Council and the Radiation Health Committee meetings including progress on ARPANSA's *Fundamentals for Protection Against Ionising Radiation*.
- Reports of ARPANSA's involvement and collaboration at IAEA technical standards committees on Radiation, Waste and Transport Safety, and at the Fukushima Comprehensive Report Drafting Group meeting.
- Safety aspects relating to a transport incident had occurred involving the movement of radiation sources from Queensland to Germany when a package lid became dislodged during the movement and was later detected on arrival in Germany.
- Updates on the current situation in Japan following the Fukushima nuclear accident. Discussions on how the Japanese are monitoring the site including seawater; plans for remediation; and operation of reactors.
- The Committee discussed and agreed to finalise its advice to the CEO out-of-session on: (1) best practice approaches to applying licence conditions; and (2) beam calibration work that ARPANSA's Medical Radiation Branch currently performs at the Australian Synchrotron.
- The Committee reviewed ANSTO's hypothetical assessment of the scenario of a fuel plate being released from a fuel assembly during normal reactor operation. Key aspects discussed were the design and physical characteristics of fuel plates; potential storage of fuel plates

or other items should they be dislodged; and the assumptions applied to operator performance. Members considered that while modified fuel design renders the possibility of this event virtually impossible, the assessment was useful to help ANSTO understand and continuously improve its organisational resilience and response capability. Members provided comments reviewing ANSTO's investigation report regarding the difficulties occasionally experienced during fuel assembly clamp operations. The Committee discussed: the thoroughness and breadth of the report; ANSTO's assessment of systemic factors; processes and practices of both management and operational staff; risk assessment and mitigation; and OPAL procedures and document control. The Committee discussed: the thoroughness and breadth of the report; ANSTO's assessment of systemic factors; processes and practices of both management and operational staff; risk assessment and mitigation; and OPAL procedures and document control.

- The Committee reviewed ARPANSA's discussion paper which outlined the roles and expectations of the Committee, the Radiation Health Committee and the Radiation Health and Safety Advisory Council. Members discussed: the potential for increased interactions with the Radiation Health Committee and Council; the Committee's visibility to the public; and facilitating advice to the CEO.
- The Committee provided advice on two matters pertaining to controlled facilities: the Periodic Safety Review submitted to ARPANSA by ANSTO in connection with the condition placed upon the OPAL reactor operating licence; and the ANSTO Nuclear Medicine facility construction licence submission.
- The Committee reviewed two draft procedures and guidelines: draft 'Regulatory Guide: siting of controlled facilities' which provides information for applicants who intend to apply for a siting licence; and a set of draft, non-mandatory self-assessment tools ARPANSA has developed to assist licence holders and applicants identify and promote holistic safety practices within their organisation.
- The Committee considered the implications of analysing risk from the perspective of raw or inherent risk versus one which examines residual risks (with controls). Members discussed how the different approaches influence safety management and regulation.
- The Committee discussed the suite of draft publications necessary to better align the Radiation Protection Series publications with the IAEA Safety Standard Series.